

Pilot Study: Resident Physician Outpatient Interventions to Increase Colorectal Cancer Screening in Screening Averse Patients

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Abstract: Barriers to colorectal cancer (CRC) screening include failure of physicians to recommend screening, scheduling difficulties, cost, lack of insurance coverage, gaps in knowledge, fear, embarrassment, pain, and a lack of symptoms. Our internal medicine residency program has an ambulatory clinic CRC screening rate of 56% amongst our general patient population, compared to the CRC screening rate in New Jersey of 64.8% and the national rate of 67.3%. Our primary objective was to increase the ambulatory clinic CRC screening rate amongst our most resistant subgroup of patients (n=243), which have been historically averse to CRC screening to eclipse 30% within 6 months. We used a multifaceted approach that involves key interventions: a) resident education training, b) tracking of CRC screening in the electronic medical record (EMR) and c) an outreach education letter and brochure on CRC screening. The total number of patients offered CRC screening was 28 out of 243 (11.5%), but only 12 out of 243 (4.9%) had completed CRC screening. No patients were found to have cancer. Our inability to screen 30% of this averse patient population in this pilot study was attributed to eight limitations. We propose viable recommendations to meet our goal in a future intervention.

Keywords: Colorectal cancer screening, averse patient populations, noncompliant, colorectal cancer

INTRODUCTION

Colorectal cancer (CRC) is the 2nd leading cause of cancer-related death in the United States and as many as 4.6% men and 4.2% women will be diagnosed with CRC in their lifetime.¹ The U.S. Preventive Services Task Force (USPSTF) recommends CRC screening for men and women aged 50–75 years, beginning at age 50.² Various screening methods include high-sensitivity fecal occult blood testing (FOBT), fecal immunochemical test (FIT), sigmoidoscopy, or colonoscopy. Delays in CRC screening can lead to

disastrous consequences, where patients may develop symptoms of CRC, and rapid progression of the disease. Despite the availability of CRC screening methods, physicians face difficulties in getting CRC screening for their patients.

Due to these concerns, multiple studies have been done to assess the barriers to getting appropriate screening for patients and these include: failure of physicians to recommend screening, scheduling difficulties, cost, lack of insurance coverage, gaps in knowledge, fear, embarrassment, pain, and a lack of symptoms.^{3–9}

One significant barrier in CRC screening is illiteracy in how information is presented to patients by physicians, making it difficult to comprehend for patients.¹⁰ Another study showed that there was high physician practice variation in CRC screening and only 6% of physicians who successfully ordered CRC workup actually counseled patients on the risk of CRC.¹¹ A recent review explored the systematic failures at each step in the CRC screening process and noted that 30% to 50% of patients do not initiate screening when it is offered,¹² 40% to 60% of patients with normal results do not undergo repeat screening,^{13,14} and more than 50% of patients with abnormal screening results do not complete a follow-up evaluation.^{15,16} This research shows that the physician's inability to effectively communicate the need for CRC screening and follow through on testing is a strong barrier, and more research is needed to address this communication obstacles.

Some studies have explored the use of multifaceted approaches to increase CRC screening in socioeconomically disadvantaged and ethnically diverse populations. In 2018, a systematic review was done assessing 27 unique studies of clinic and community interventions to increase fecal testing for colorectal cancer in rural and low-income populations in the United States. Overall, it was shown that the provision of kits through the mail, use of pre-addressed

stamped envelopes, client reminders and in-clinic distribution were more highly effective/effective in increasing CRC screening than the clinic-based study arms.¹⁷ Additionally, another cluster randomized clinical trial was conducted in 26 federally qualified health center clinics across Oregon and California to increase CRC screening via promotion of FIT testing. The interventions in this RCT included an introductory letter, a mailed FIT, and a reminder letter. Compared with usual care clinic visit control arm, the intervention clinics had significantly higher adjusted clinic-level proportion of participants who completed a FIT (13.9% vs 10.4%) and any colorectal cancer screening (18.3% vs 14.5%).¹⁸ Another study implemented the use of outreach invitation letters educating patients on CRC screening which showed increased screening among racially diverse and socioeconomically disadvantaged populations: The study showed 40.7% increase with FIT and 24.6% increase with colonoscopy outreach as compare to 12.1% for usual care ($P < .001$ for all comparisons).¹² These studies inspired our research group to create a modified multifaceted approach to increase CRC screening in an outpatient resident physician clinic setting.

Our internal medicine residency program has an ambulatory clinic CRC screening rate of 56% amongst our patient population who were eligible for CRC screening. In 2016, the average screening rate in New Jersey was 64.8% and the national rate was 67.3%.¹⁹ Our outpatient clinic provides care to a generally low socioeconomic and ethnically diverse patient population that has a historically low visitation rate – only 33% of patients show up for their appointment. There are 243 patients who are eligible for CRC screening in our clinic but have refused it in the past (Figure 1).

The primary objective of this study was to increase the clinic CRC screening rate amongst our most resistant subgroup of patients ($n=243$) – which had refused CRC screening in the past – and to achieve at least a 30% screening rate within 6 months in this subgroup. Our interventions included: a) resident education communication training, b) tracking of CRC screening in the EMR system and c) an outreach letter and brochure to patients educating on CRC screening. To our knowledge, this particular multifaceted approach has never been implemented in a patient population highly averse to CRC screening.

METHODS

Study Design and Setting

This quantitative pre, postintervention prospective study was conducted at a community hospital

accredited by The Joint Commission that has an internal medicine residency program and adult outpatient clinic with over 1,500 patients. The primary goal was to achieve CRC screening in 30% of patients that refused CRC screening previously.

Inclusion criteria: The patient population assessed were ages 50 – 75 between 2015-2017, who had been offered age appropriate CRC screening in the past but refused CRC screening ($n=243$). This population generally had a lower socioeconomic status and education history, and had a 33% visit show rate to appointments.

Exclusion criteria from intervention group:

- Patients that were already screened for CRC, including colonoscopy within 10 years, sigmoidoscopy within 5 years, or FIT/FOBT testing within 1 year.
- Patients who no longer came to our clinic since 2015 or died
- Patients with high risk factors requiring earlier screening such as inflammatory bowel disease, history of polyps, colectomy, personal history of family history of CRC, or CRC high risk genetic disorders (ex: Lynch Syndrome)

The study was approved by the hospital administration in accordance with the quality assurance policy and received IRB approval and is listed as Study# Pro2018-0301. No direct patient identifiers were maintained in the study database.

Intervention

The previous model of CRC screening at the AHC from January 2015 – December 2017 was to check on CRC screening status at all annual preventative care visits. During these preventative care visits resident physicians would explain CRC screening and then provide a gastroenterology referral. However, there was no standardized way to explain CRC screening to patients, no systematic method to chart CRC screening status, and no CRC education outreach letters or brochures.

This intervention group underwent multi-faceted approach to increase CRC screening rates through:

1. A workshop seminar led by a gastroenterologist taught all resident physicians in June 2018 how to overcome patient barriers to CRC screening in diverse socioeconomic ethnic groups.
2. EMR tracking notified the physician upon opening the chart of the CRC screening status of the patient. But if patients were not up to

date, the EMR would “flag” the patient as not being up to date with their CRC screening. Medical assistants would call patients and encourage them to come in for a visit. Upon their visit, the electronic patient chart will be flagged to document the patient CRC screening status after physician counseling.

3. Outreach letters and brochures were sent to patients (written in English or Spanish), to explain CRC, importance of screening and methods available including colonoscopy, FOBT and Cologuard. Patients were advised to schedule an appointment for CRC screening education and gastroenterology referral. Those who did not schedule a clinic visit received a follow up phone call from bilingual medical assistants to schedule a patient appointment. Two attempts were made over two weeks, and lack of visit was noted in the EMR system.

In June 2018 all resident physicians received seminar training by a gastroenterologist on overcoming common barriers to CRC screening, and instructions on EMR tracking, referrals and screening options. Then at the end of June 2018 all patients averse to screening (n=243) were first sent an outreach letter and brochure on CRC screening. Over the course of 6 months between July – December 2018, these patients were educated at each visit by resident physicians on the importance of CRC screening and provided gastroenterology referral and CRC screening testing using the techniques provided from the gastroenterologist workshop. Patients charts were updated on their CRC screening status. If patients refused colonoscopy, they were offered either FOBT or Cologuard and this was documented. Patients were tracked based on their status of CRC screening ordered, and then followed over the 6-month period to see if they completed their CRC screening.

After the study period, the researchers reviewed the data end, assessed the methodology, and interviewed physicians and patients to assess key barriers in CRC screening.

Measurements and Statistical Analysis

The primary objective of this study was to complete CRC screening for 30% of this highly averse patient

population (n=243) that had refused CRC screening in the past.

The following outcomes were measured for each group:

- i) 6 months follow up in clinic after receiving outreach letter and brochure
- ii) Gastroenterology referral letter
- iii) Number of patients offered CRC screening
- iv) Type of CRC screening offered
- v) Number that completed CRC screening

Both a Chi-Square analysis and t-tests were conducted to assess if the intervention made a statistically significant impact (p-value < 0.001) on the primary objective regarding the efficacy of the multifaceted approach to CRC screening in this highly averse patient population compared to the general clinic population.

RESULTS

The patient population explored in this study was 243 patients who have been offered colorectal screening in the past but were highly averse to getting CRC screening (Figure 1). However, only 108 out of 243 (44.4%) of the patients followed up for an appointment within 6 months of receiving a CRC screening outreach letter and brochure. Just 45 out of 108 (41.7%) of patients received at their follow up a gastroenterology referral letter to get CRC screening. Unfortunately, only 28 out of 45 (62.2%) of those patients offered gastroenterology referrals also had a CRC screening test ordered. Of the 28 patients offered both gastroenterology referral and CRC screening testing, the following tests were ordered: 5 FOBT, 5 Cologuard and 18 colonoscopy tests. Of the 28 that had CRC screening offered only 12 out of 28 (42.9%) completed their CRC screening. The total number of patients offered CRC screening was 28 out of 243 (11.5%), but only 12 out of 243 (4.9%) had completed CRC screening. No patients were found to have cancer. The Chi Square Value (p-value) = 4.73081E-43 indicates that there is a significant difference between both the control group that underwent regular CRC screening and the intervention group which underwent the multifaceted approach screening.

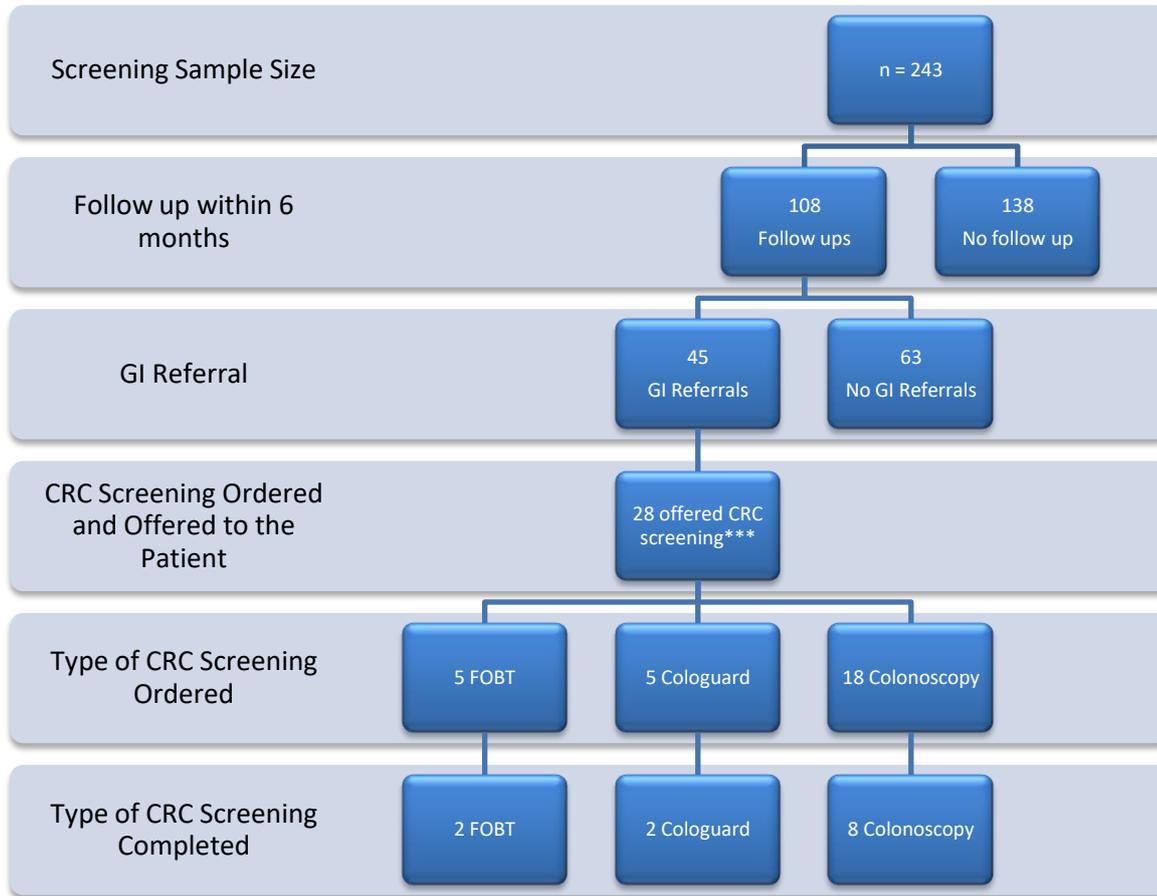


Figure 1: The CRC screening for the highly averse patient population that has refused CRC screening in the past (n=243) and the outcomes for CRC screening following interventions.

LIMITATIONS

There were multiple limitations to this study which resulted in our inability to screen 30% of our highly averse patient population (n=243). First, we failed to bring a large portion of our intervention population into the clinic to get testing. Second, it is unclear how much the brochure helped with bringing the patient into the clinic. Third, our medical assistants did not consistently make follow up phone calls to patients that received the outreach letter and brochure and did not schedule appointments. Fourth, not all patients received both a gastroenterology referral and a CRC screening test. Fifth, resident physicians did not always address CRC screening during follow-up visits. Sixth, new intern residents that started in July 2018 did not get standardized workshop training by the gastroenterologist. Seventh, resident physicians felt burdened in ordering extra referrals or CRC screening tests at every visit since this extended appointment time. Eighth, in the summer of 2018, roughly half of our entire patient clinic population had an insurance plan which stopped being accepted by our hospital.

DISCUSSION

Interviews with the resident and clinic staff revealed the following key barriers to the goal of screening 30% of our high-risk unscreened population for CRC. First and foremost, our patient population (n=243) is a disadvantaged socioeconomic group with generally a high school education that has been averse to CRC screening in the past, and includes patients that had only one visit to our clinic within the window of the past 5 years. Common barriers included patient fear/anxiety and lack of awareness and knowledge of CRC and screening. The inherent resistance of the patient population group itself makes it difficult to convince this group to get CRC screening.

Secondly, our clinic had a show rate of 33% from June 2018 to December 2018. We were unable to reach many patients due to poor adherence to follow up by medical assistants who did not consistently call patients who needed CRC screenings. Furthermore, roughly 50% of our patient population in this subgroup had an insurance plan which the medical center stopped participating in during the trial period. Thus, these patients could not visit our clinic for CRC screening.

Thirdly, many patients were not offered CRC screening during their follow up visits, since most visits were for acute issues or management of uncontrolled chronic medical problems that took precedence. Adding in discussions about CRC screening and tests added a significant burden to the resident physicians who were mostly focused on managing active illnesses. Our research team approached this challenge by explaining to co-residents in peer-to-peer interactions the importance of advocating CRC screening for the patient to reduce the risk of cancer progression and improve the quality of patient care.

Fourthly, electronic tracking of the patient screening process was too cumbersome and lacked simplicity with our electronic health record system at the start of the trial. For example, in order to document a patient being tested for CRC screening, it required manually generated orders for: CRC screening test, GI referral and a CRC method of testing. In addition, residents had to navigate through prior medical charts to find CRC screening status. Our electronic record medical system at the time of the study was unable to systematically "flag" patients with a pop-up notification regarding their CRC screening status at each visit. Our data showed that 45 patients were offered GI referrals, but due to our poor tracking system in our EMR, only 28 had some form of CRC screening ordered. This led to a low capture rate of the remaining 17 patients who were amenable to getting CRC screening. Data shows that only 12 of the 28 patients offered CRC screening had completed the test. Thus, the remaining 16 other patients were not "flagged" in real-time to notify us that they needed to complete their testing. Our facility has fixed this problem by transitioning to a new EMR system with in-built tracking capability to help increase our capture rate in future trials.

Fifth, in June 2018 only two thirds of our residents were trained on persuasive methods to overcome common rebuttals by patients averse to getting CRC screening. Unfortunately, the new interns who arrived in July 2018 did not receive this training. Of the 108 patients who arrived to the clinic, only 45 received a GI referral to get CRC screening (41.7%). This lack of consistency in standardized approach to CRC screening may have led to a poorer capture of screening in this highly averse patient population. In future studies, we will implement more frequent training workshops by gastrointestinal physicians for the residents in each clinic rotation so they can enhance their communication skills to overcome common rebuttals by patients resistant to CRC screening.

CONCLUSION

This pilot study showed that our multifactorial outreach initiative did not reach our goal of completing colorectal cancer screening on 30% of our highly averse patient population. The total number of patients offered CRC screening was 28 out of 243 (11.5%), but only 12 out of 243 (4.9%) had completed CRC screening. No patients were found to have cancer. We did not meet our goal due to: 1) highly averse patient population to CRC screening, 2) visit show rate of 33% from all clinic patients, 3) inadequate compliance in placing both gastrointestinal physician referrals and CRC screening test by the resident physicians, 4) inadequate electronic tracking of CRC screening status, 5) no standardized protocol for patient education on CRC screening by the resident physician.

IMPLICATIONS

While our pilot study did not achieve CRC screening in 30% of the highly averse patient population, we identified barriers and found solutions that will likely increase screening in further interventions. We will repeat this trial over the next 6 months and implement the following recommendations: 1) increase the visitation rate through phone calling follow ups, 2) increase resident compliance to order CRC screening tests and referrals, 3) increase tracking of CRC screening in the new EMR, 4) implement standardized workshops with gastroenterologists for all resident physicians to teach how to overcome patient barriers to screening, 5) follow up on all patients that receive outreach letters and brochures, 6) increase accepted insurances for patients to bring in the patients previously unable to be seen in the clinic.

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